

## Today's Topics:

Antennas  
Broadcast jammers  
Help Needed With Kenwood TH215 2M TCVR  
Kenwood TS140  
MAC logging program  
Out-of-Band Tx/Rx Mods Reconsidered  
Telephone Interference  
WEFAX 105 Uploaded!!

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Date: 14 Dec 89 01:42:01 GMT

From: osu-20.ircc.ohio-state.edu!bertsch-s@tut.cis.ohio-state.edu (Steve Bertsch)

Subject: Antennas

Message-ID: <12549900427007@osu-20.ircc.ohio-state.edu>

In a few magazine articles I've seen the terms 'near field' and 'far field', but I can't find any mention of these terms in any of the radio or electronics texts I've tried. Can anyone define these terms?

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Date: 12 Dec 89 13:45:47 GMT

From: mcsun!ukc!stc!datlog!torch!igp@uunet.uu.net (Ian Phillipps)

Subject: Broadcast jammers

Message-ID: <581@torch.co.uk>

larson@unix.SRI.COM (Alan Larson) writes:

(Refers to jamming on 7150kHz)

>As I recall, I had heard that most of the Soviet and Eastern European

>broadcast jamming stations had been shut down a few years ago. I was...

>Does anyone know the status of these stations?

I heard that the BBC Mandarin service is being jammed by the Chinese.

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Date: Wed, 13 Dec 89 17:00 CDT

From: "FEROZ GHOUSE, N9FJL/4S7FG" <FGHOUSE@LAX.WISC.EDU>

Subject: Help Needed With Kenwood TH215 2M TCVR

Message-ID: <19121317005068@lax.wisc.edu>

I am trying to use a Kenwood TH215 hand held TCVR as a start out rig on

packet radio. However, I am not able to get the PTT on it to work with the external connections. I have followed the standard connections for wiring the input to the external mic connector.

I have unfortunately misplaced my manual and right now am helpless!! I would appreciate it if someone could give me the correct connections so that I could connect to a TNC and packet away.

Thanks

Feroz Ghouse 4S7FG/N9FJL  
<FGHOUSE@UWLAX.BITNET>

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Date: 13 Dec 89 22:48:06 GMT  
From: wind!copp@bellcore.com (David H Copp)  
Subject: Kenwood TS140  
Message-ID: <18587@bellcore.bellcore.com>

I am considering purchasing a Kenwood TS140. I would like to receive opinions of the rig from people who have them. TU es 73's

David H. Copp WS2I  
(201) 829-4337  
copp@bellcore.com

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Date: 13 Dec 89 17:34:45 GMT  
From: att!cbnewsm!nk30@ucbvax.Berkeley.EDU (JEFF ZELL NK30)  
Subject: MAC logging program  
Message-ID: <7538@cbnewsm.ATT.COM>

I am looking for a program for logging and printing of labels for QSL cards. The machine of my choice is the Mac. There are very few programs available for the Mac. I have some shareware and PD programs but nothing that will do this function

TNX and 73  
JEFF NK30

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Date: 14 Dec 89 00:36:50 GMT  
From: oliveb!orc!mipos3!cmdfs2!jbromley@apple.com (James Bromley~)  
Subject: Out-of-Band Tx/Rx Mods Reconsidered  
Message-ID: <333@cmdfs2.intel.com>

Back in the good old days when transmitters consisted of self-excited oscillating fire bottles, staying on frequency (or just within a given band) was a real exercise in radio operator technical skill. The usability of the medium was a direct function of this competency and, to protect the rights of all spectrum users, the principle of OPERATOR licensing in addition to STATION licensing was instituted by the U.S. and also through international conventions.

Over the years, operator licensing became an institution in and of itself. In the post-WWII Radio/TV heyday, a commercial (or even amateur) radio operator's license was a solid credential that led to a good technical job, sometimes only remotely connected to the actual transmission of a radio signal. In amateur radio circles, with incentive licensing, higher degrees of operator competency were deemed very desirable and lavishly rewarded with wider operating frequency ranges.

Today, off-frequency operation, whether it is the result of an unattenuated harmonic, excessive phase noise from a PLL, a spurious mixer product or (heaven forbid) dialing in the wrong frequency, can be even more of a problem in this ever more crowded medium. Operator skill would seem to be at a premium to prevent interference and ensure orderly utilization of an admittedly limited resource.

However, with the advent of radio equipment that is so technically sophisticated as to preclude almost all mis-operation (including off-frequency operation) the requirement for technically skilled operators decreases considerably. Consequently, the justification for imposing an OPERATOR licensing requirement with its concomitant tests for competency becomes much weaker. Indeed, future licensing requirements might only be those for a STATION license. And the criteria for granting such a license would be those currently used for broadcasting, land mobile, aeronautical, etc., namely demonstrable need, frequency congestion and integrity of the licensee. No code, no theory, no legal knowledge....nothing.

A strong argument for retaining operator licensing requirements would be the continuing use of radio equipment that was capable of interference-causing mis-operation. Such equipment would necessarily have unrestricted frequency coverage (just like the old self-excited transmitters), have adjustments for modulation parameters and internal tuning readily accessible (ie: on the front panel) and be subject to a wide variety of modifications

on its transmitter circuitry. If high-powered, it would be capable of output far in excess of legal limits. Only a highly skilled person could operate such equipment properly (and legally) and it would be in the clear interest of the United States to maintain the structure to license and regulate such operators.

So the possession and use of modified radio equipment capable of out-of-band, excessively high powered operation may be the salvation of Amateur Radio as we know it, with LICENSED OPERATORS being required for station operation. Otherwise, amateur radio could become just another land-mobile/point-to-point utility service. Like Domino's Pizza or Joe's Plumbing. Those people can't get off-frequency no matter what the (unlicensed) operator does. Amateur Radio is a great deal woolier than that. And the operator licenses that we all value dearly are testimony to the potentially illegal capability of our equipment and our skill in preventing such operation from occurring.

de W5GYJ/7

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Date: 13 Dec 89 20:28:30 GMT  
From: cs.utexas.edu!helps!bongo!julian@tut.cis.ohio-state.edu (julian macassey)  
Subject: Telephone Interference  
Message-ID: <284@bongo.UUCP>

In article <6225@cbnewsh.ATT.COM>, nd2k@cbnewsh.ATT.COM (alfred.a.schwarz..jr) writes:

>  
> Does anyone have any ideas/pointers on quieting down telephone  
> interference?

Below are some extracts from an article I wrote a couple of years ago for Popular Communications Magazine. The Issue was Feb 1988, if you want to see the whole thing.

## TELEPHONE INTERFERENCE

### (CAUSES AND CURES)

There is some hope when it comes to interference. The FCC has issued a field bulletin on RFI. The document is called "Bulletin FO-10, Telephone Interference". Copies of it can be obtained from any FCC field office. Find your nearest FCC

office by looking up FCC in the phone book. The Bell System has considered the problem and approach it from the viewpoint of interference to regular 500 and 2500 type phone sets. The Bell document concerning RFI is known as a Bell Systems Practice (BSP). The document is BSP Section 500-150-100.

Before you tear things apart and spend money, there are a few things to check. These checks can be done with an adjustable wrench and a screwdriver. What is checked is anything on the line itself that could be acting as an antenna or detector. A dirty connection can work as a diode to detect RF signals. Go over the internal wiring looking for the following:

1. Corroded connections. Clean and tighten.
2. Loose wire terminations, including set wiring and all jacks and junction boxes. Tighten any loose screws.
3. Abandoned wire still connected to the line. Remove any wire not connected to a working phone.
4. Old unused devices still connected to the line. Remove abandoned phone answering machines, old telephones and bells etc.

If any of the above is what is causing the RFI, until you fix them, there is little hope that anything else you do will cure the problem.

The other legal "do it yourself" fix is attachment of toroid cores. These cores look like small black doughnuts, by wrapping wire round a ferrite core a simple effective RF filter or choke can be made. Ferrite cores are frequency selective, by the choice of the right material, interference can be effectively hit on the head.

With modern phones, the most RF sensitive part of the phone is the electret microphone and its preamplifier circuit. By application of ferrite cores to the handset cord, there is a fair chance of easily and cheaply fixing the problem. If you are hearing radio signals on the phone, there is a way of checking if the microphone/handset cord is to blame. Dial a partial number to give you silence, listen for the interfering signals and grab the handset cord. If the signal changes in volume - gets better or worse - try a ferrite core.

The best source of ferrite cores in small quantities is

Amidon Associates, 12033 Otsego street, North Hollywood, California 91607. PHONE: (818) 760-4429. Amidon Associates have several ferrite "mixes" available. For interference from 500 Khz to 10 Mhz, i.e. AM broadcast RFI, they recommend their 75 material. For interference from 1 to 30 Mhz they recommend their 73 material. The 73 material should take care of all short wave Ham and CB interference. For low VHF and channel 2-7 RFI you can try a ferrite core made with the 43 material which should take care of RFI between 1 and 70MHz. For best results use the material that has the lowest cutoff point for your problem. If the local AM transmitter at 1070 KHz is your problem, use the 75 material, it will give much better attenuation at that frequency than the 73 material.

For a handset cord, a half inch core is ideal. Wrap four or five turns of the handset cord through the core and plug it back into the handset. The cord can be held in place with black vinyl tape or glue, hot melt glue works well. Experiment with the positioning of the core. Often having the core by the handset works best, other times plugging in the cord with the core by the body of the phone is better. Sometimes a core at each end of the cord is needed to do the trick. The cores may look kinda clunky, but if they provide relief easily and cheaply, who are you to complain.

The numbers for the half inch cores are: FT-50A-75, FT-50A-73 and FT-50A-43. Yes you guessed it - the last two digits tell you the material being used. For one and a half inch cores used with line cords explained below, the numbers are: FT-140-75. The last two digits being the same as for the half inch cores.

For RFI that you suspect to be entering via the phone line, wrapping the line cord round a large core can help. Usually it is best to place the core at the telephone end of the line cord. Though like all RFI cures, experimentation, otherwise known as "suck it and see", does a better job than hard and fast rules. With the large core on the line cord, between six and twenty turns on the cord should do the trick. A core on each end of the line cord may help in stubborn cases.

For authorized phone repair stations, telephone personnel and those willing to risk "Open circuit surgery", there are several solutions. Using ferrite cores, twenty turns or so of scrap 24 Gauge telephone wire can be wrapped round a half inch ferrite core. Use two cores, one for Tip and one for Ring and place them inside the phone. The same kind of cores and windings can also be used, inside the phone, on the transmitter (microphone) leads.

For those really handy with a smoking soldering iron there are some more fixes to try. For phones using electret microphones, some well placed capacitors may do the trick. Try a 0.01 uF (10 NF) across the electret element. If that doesn't work try the same value of cap across the hot side of the element to the "ground" of the pc board. Regular phones with carbon transmitters can be helped with a 0.01 or 0.1 uF capacitor across the element. Solder the capacitor across the contact fingers in the handset, not across the element, so if the transmitter is changed, the RF proofing will stay with the phone. Also, inside the phone, a 0.1 uF (100 NF) 250V capacitor across Tip and Ring can be helpful. The type of capacitor to use is a Ceramic or Mylar.

For those with access to AT&T parts or wishing to help the local phone company, there are a couple of bits of helpful hardware mentioned in Bell Systems Practice 500-150-100. First there is a coil that should be spliced into the phone line. It is called a 1542A inductor. It should be spliced into the line as near as the offending telephone set as possible. This means put it right before the modular jack. It has six terminals, two for Tip, two for Ring and two for a ground, should the phone still need a ground (yellow wire) for the ringer or party line. The ground terminals are not in any way connected to the coil, so bringing a ground to the inductor, unless needed in the phone, will not help cure any RFI.

The Bell document also mentions a capacitor, designated a 40BA capacitor. It is actually four capacitors (see Fig 1) and the intent is to place a capacitor between each leg of the phone line and ground. The 40BA is usually installed at the telephone protector. There is always a good ground available at the protector, often a heavy gauge solid, solid gray jacketed wire. Those telephone personnel who do not have access to a 40BA capacitor should find that a couple of 0.1 uF 250V Mylar capacitors will work just as well (see Fig 2). To install the 40BA or 0.1uF capacitors, find the protector. The protector is usually outside the building in a wall mounted small box, in the basement or in a closet for businesses and apartment buildings. If the phone line comes in on overhead cable, the protector will be in the first box the cable goes to after entering the premises.

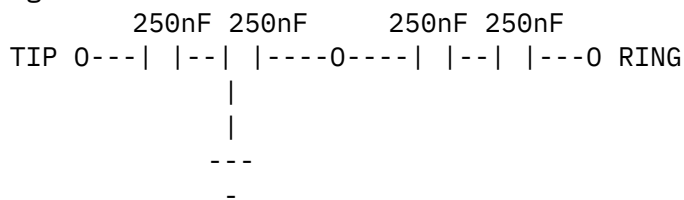
That should be some help in beating the problem. Don't forget that some types of phones are more sensitive than others. Some cases may be so severe that nothing helps. AT&T no longer have RFI proofed phones available, although an old style desk

phone with some capacitors added will be pretty immune to RFI. Alas AT&T no longer makes old style 500 and 2500 desk sets, although they sell reconditioned ones. Several manufacturers such as ITT, Comdial, and Northern Telecom still make old style phones.

END

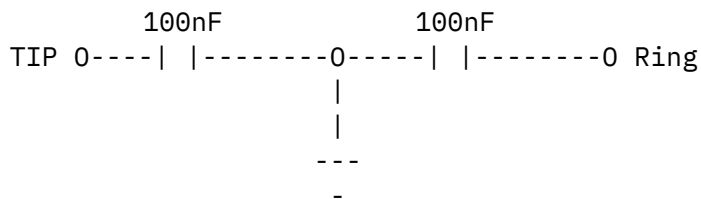
This article appeared on Page 56 of the Feb 1988 edition of Popular Communications Magazine.

Fig 1>



AT&T 40BA capacitor schematic and connection diagram

Fig 2>



Schematic for 100 nF capacitors on telephone protector.

Hope this helps.

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N6ARE@K6IYK (Packet Radio) n6are.ampr.org [44.16.0.81] voice (213) 653-4495

Date: 13 Dec 89 16:30:28 GMT

From: att!cbnewsj!newsman@ucbvax.Berkeley.EDU (john.ferro..jr)

Subject: WEFAX 105 Uploaded!!

Message-ID: <2826@cbnewsj.ATT.COM>

In article <1109@unsvax.NEVADA.EDU>, storkus@arrakis.nevada.edu (Mike Storke  
(N7MSD)) writes:



Mike,  
Could you please send me a copy of WEFAX 105. Would this get to me  
through E-mail?

Thanks john Ferro

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End of INFO-HAMS Digest V89 Issue #1014

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